

REMARKS

The Official Action dated August 15, 2003 has been carefully reviewed and the foregoing amendment has been made in response thereto. Prior to entry of the foregoing amendment claims 1 through 6 were active in the present application. Claims 1 through 6 stand rejected under 35 U.S.C. §103(a). Claims 1 and 2 are rejected as being unpatentable over Martino et al (US Patent No. 6,061,646) in view of Van Schyndel (US Patent No. 5,940, 118). Claims 3 and 4 are rejected as being unpatentable over Martino et al. in view of Nagata (US Patent No. 6,009,396). Claims 5 and 6 are rejected as being unpatentable over Martino et al. in view of Van Schyndel and Nagata. Additionally, the disclosure was objected to because of a typographical error.

Reconsideration and allowance of the subject application in view of the foregoing amendments and the following remarks is respectfully requested.

Objection of the Specification

The foregoing amendment to the specification at page 11, lines 21 through 27 has corrected the typographical error identified by the Examiner in the objection to the disclosure.

Rejection of Claims 1 and 2 under 35 U.S.C. 103(a)

Claims 1 and 2 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Martino in view of Van Schyndel. It is believed that the rejection of claims 1 and 2 under 35 U.S.C. 103(a) is overcome by the foregoing amendment to claim 1.

Martino was cited as disclosing an apparatus comprising (a) a self-service kiosk which dispenses articles, currency, or communication services. The official action acknowledges that Martino fails to disclose (b) within the kiosk, a

steerable-beam microphone array which points a microphone lobe toward the face of the customer, for receiving speech from the customer; but cites Van Schyndel as disclosing this element.

As amended, claim 1 recites a steerable-beam microphone array which points a microphone lobe toward "a position emanating the highest signal-to-noise ratio". This amendment more clearly distinguishes Applicant's invention from the system described in Van Schyndel. Van Schyndel teaches a steerable microphone array that is steered by optical signals and is only concerned with the physical location of a speaker's head, so to pick up the strongest speech signal. Conversely, the Applicant's invention, as recited in amended claim 1, is steers a microphone array to a position where it can receive a signal with the highest signal-to-noise ratio ("S/NC"), where signal refers to speech signal and noise refers to continuous noise.

While in practice, steering the microphone array toward the signal with the highest S/NC ration could encompass the physical location of the speaker's head, Van Schyndel does not inherently encompass the position with the highest S/NC ratio, as taught by the Applicant. The Applicant's steerable microphone array is not concerned with a physical face or head, but only speech signals and noise signals and by design may select a lobe that is not in the direction of a speaker's face, when that lobe has a higher S/NC ratio. Thus, as "a position emanating the highest S/NC ratio" is not taught or suggested by Martino et al. or Van Schyndel taken separately or in combination, Applicant respectfully requests that the rejection of claims 1 be withdrawn. Claim 2 depends from claim 1 and is therefor also believed patentable over the cited references.

Rejection of Claims 3 and 4 under 35 U.S.C. 103(a)

The rejection of claims 3 and 4 under 35 U.S.C. §103(a) as being unpatentable over Martino in view of Nagata is respectfully traversed. It is believed that (i) the references, singly or in combination, fail to teach or disclose all limitations of the rejected claims, and (ii) there is no suggestion or motivation to combine teachings of Martino and Nagata. Additionally, claim 3 has been amended to more clearly point out the Applicant's invention and distinguish it from the prior art.

Regarding (i), the Official Action states that "Martino discloses an apparatus comprising: (a) a self-service kiosk which dispenses articles, currency, or communication services. The Official Action acknowledges that Martino fails to disclose: (b) within the kiosk, (i) a steerable beam microphone array, having multiple lobes; (ii) means for sampling lobes, and (A) identifying lobes having a relatively high speech content, (B) identifying lobes having a relatively low noise content, and (C) actuating a lobe having both a relatively high speech content and relatively low noise content. The Official Action further states that one with ordinary skill in the art would readily know these aforementioned features, not disclosed by Martino, at the time of the Applicant's invention, as taught by Nagata. Specifically, the Examiner cites Col. 10, Ln. 4-5 of Nagata, "peaks above threshold may be detected as the sound sources" as being equivalent to identifying lobes having a relatively low noise content.

Applicant respectfully disagrees. "Peaks above threshold may be detected as the sound sources" as taught by Nagata is not equivalent to "identifying lobes having a relatively low noise content." Although the present application teaches a function similar to that taught by Nagata, i.e., that "a minimal level of sound can be established which is considered acceptable," (page 13, lines 3-4), this is not what the Applicant is claiming as the invention. Both the Applicant's excerpt

from page 13, line 3-4 and the Nagata excerpt refer to sound, not noise, and both of these excerpts are concerned with the relative intensity of that sound. "Above this threshold" in Nagata refers back to 5 dB, which is a measure of the intensity of sound. The measure makes no distinction to type of sound, i.e., speech or noise, as suggested in the Office Action.

Furthermore, when "all peaks above this threshold may be detected as a sound source" is read in light of the entire Nagata disclosure, it is obvious that the reference is intended to reduce the calculations necessary to carry out the disclosed method. The reference does not teach identifying lobes having a relatively low noise content. Thus claims 3 and 4 of the present application are believed to be patentable over Martino and Nagata, as these references fail to teach or suggest all the elements of claims 3 and 4.

Regarding (ii) that there is no suggestion or motivation to combine teachings of Martino and Nagata, the Examiner makes three assertions. First, that Martino teaches an apparatus comprising a self-service kiosk which dispenses articles, currency, or communication service. Second, that Nagata teaches within the kiosk, a steerable beam microphone array, having multiple lobes; means for sampling lobes, and identifying lobes having a relatively high speech content, identifying lobes having a relatively low noise content. And finally, that "it would be obvious to actuate a lobe having both a relatively high speech content and relatively low noise content since one in the art would obvious like to put the prior signal processing to use in a meaningful way." The Examiner alleges that it would have been obvious to combine these references at the time of Applicant's invention. There has been no adequate suggestion or motivation to modify or combine the references.

It is well established that "there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one

of ordinary skill in the art, to modify the reference or to combine reference teachings.” See MPEP 2143

Applicant respectfully disagrees with the Examiner’s position that it would have been obvious to one of ordinary skill in the art at the time of invention to combine the references. Should the Examiner insist otherwise, convincing evidence showing that the suggestion or motivation to modify/combine was actually in the knowledge generally available to one of ordinary skill in the art at the time the present invention was made is respectfully requested.

Rejection of Claims 5 and 6 under 35 U.S.C. 103(a)

The rejection of claims 5 and 6 under 35 U.S.C. §103(a) as being obvious over Martino in view of Nagata and Van Schyndel is respectfully traversed. It is believed that (i) the references, singly or in combination, fail to teach or disclose all limitations of the rejected claims, and (ii) there is no suggestion or motivation to combine teachings of Martino, Van Schyndel and Nagata.

Regarding (i) the Official Action states that Nagata discloses that all peaks on the sound source distribution above a threshold are detected as sound sources (Col. 10, Ln. 4-5), and therefore that Nagata teaches distinguishing noise from sound in the signal coming from the microphone. The Official Action also states that in light of the Nagata teaching “it is obvious to measure noise content of several lobes of the array.”

Applicant respectfully disagrees. As stated earlier, “Peaks above threshold may be detected as the sound sources” as taught by Nagata is not equivalent to “identifying lobes having a relatively low noise content.” Although the present application teaches a function similar to that taught by Nagata, i.e., that “a minimal level of sound can be established which is considered acceptable,” (page 13, lines 3-4), this is not what the Applicant is claiming as the invention. Both the

Applicant's excerpt from page 13, line 3-4 and the Nagata excerpt refer to sound, not noise, and both of these excerpts are concerned with the relative intensity of that sound. "Above this threshold" in Nagata refers back to 5 dB, which is a measure of the intensity of sound. The measure makes no distinction to type of sound, i.e., speech or noise, as suggested in the Office Action.

Reading "all peaks above this threshold may be detected as a sound source" in light of the entire Nagata disclosure, it is obvious that the reference is intended to reduce the calculations necessary to carry out the disclosed method. The reference does not teach identifying lobes having a relatively low noise content. In addition, it can not be obvious to measure noise content of several lobes of the array, as Nagata does not distinguish noise from sound in the signals coming from the microphone array.

Claims 5 and 6 of the present application are believed to be patentable over the cited references to Martino, Van Schyndel and Nagata, taken singularly or in combination, as neither of the references teaches or suggests c) measuring noise content and speech content of several lobes of the array; and d) selecting a lobe which carries ii) smaller noise signals than other lobes.

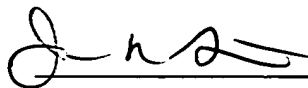
Regarding (ii), that there is no suggestion or motivation to combine teachings of Martino, Van Schyndel and Nagata, the Official Action states that "it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Martino et al. to further comprise maintaining a beam-steerable microphone array at the self-service kiosk, measuring noise content and speech content of several lobes of the array, and selecting a lobe which carries larger speech signals than other lobes and smaller noise signals than other lobes because one of ordinary skill in the art would recognize that this would provide more accurate speech recognition for suppressing background noise and localizing sound sources effectively."

It is well established that "there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. See MPEP 2143

Applicant respectfully disagrees with the position taken in the Office Action that it would have been obvious to one of ordinary skill in the art at the time of invention to combine the references. Applicant has carefully reviewed the applied references and can find no teachings in the references that support an obviousness rejection. Should the Examiner insist otherwise, convincing evidence showing that the suggestion or motivation to modify/combine was actually in the knowledge generally available to one of ordinary skill in the art at the time the present invention was made is respectfully requested.

In view of the foregoing amendments and remarks, it is believed that the application including claims 1 through 6 is in condition for allowance. Early and favorable action is respectfully requested.

Respectfully submitted,



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